
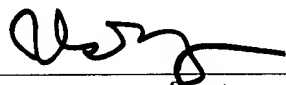
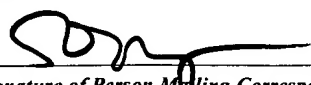


AF/ 3736

		TRANSMITTAL LETTER (General - Patent Pending)		Docket No. 46601-15001	
In Re Application Of: Brian A. T rok et al.					
Serial No. 09/758,978		Filing Date January 12, 2001		Examiner Robert L. Nasser	
				Group Art Unit 3736	
Title: SYSTEM FOR IDENTIFYING PREMATURE RUPTURE OF MEMBRANE DURING PREGNANCY					
<p style="text-align: center;"><u>TO THE COMMISSIONER FOR PATENTS:</u></p> <p>Transmitted herewith is: 7 page Response to Examiner's Answer (in triplicate) PLUS EXHIBITS "A" AND "1-16"</p> <p>in the above identified application.</p> <p> <input checked="" type="checkbox"/> No additional fee is required. <input type="checkbox"/> A check in the amount of _____ is attached. <input checked="" type="checkbox"/> The Director is hereby authorized to charge and credit Deposit Account No. 04-1061 as described below. </p> <p> <input type="checkbox"/> Charge the amount of _____ <input checked="" type="checkbox"/> Credit any overpayment. <input checked="" type="checkbox"/> Charge any additional fee required. </p> <p style="text-align: right;">  _____ Signature </p> <p> Dated: May 10, 2004 </p> <p> Thomas T. Moga, Reg. No. 34,881 DICKINSON WRIGHT PLLC 1901 L Street NW, Suite 800 Washington, DC 20036 (248) 433-7552 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> I certify that this document and fee is being deposited on May 10, 2004 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.  Signature of Person Mailing Correspondence Thomas T. Moga Typed or Printed Name of Person Mailing Correspondence </div> <p>cc: docketing</p>					

CERTIFICATE OF MAILING BY FIRST CLASS MAIL (37 CFR 1.8)

Applicant(s): **Brian A. Torok et al.**

Docket No.

46601-15001

Serial No.

09/758,978

Filing Date

January 12, 2001

Examiner

Robert L. Nasser

Group Art Unit

3736

Invention: **SYSTEM FOR IDENTIFYING PREMATURE RUPTURE OF MEMBRANE DURING PREGNANCY**

I hereby certify that this **7-page Reply to Examiner's Answer (in triplicate), PLUS EXHIBIT "A" AND "1-16"**
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Attorney Docket No. 046601-15001

Group Art Unit: 3736)
Examiner: Robert L. Nasser)
Inventors: Torok *et al.*)
Serial No.: 09/758,978)
Filed: January 12, 2001)
For: SYSTEM FOR IDENTIFYING)
PREMATURE RUPTURE OF)
MEMBRANE DURING)
PREGNANCY)

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Alexandria, VA 22313-1450

Appellants respectfully submit the present Reply to the Examiner's

Answer mailed March 9, 2004.

New Points Of Argument - Newly-Cited Reference

In his Answer, the Examiner stated

"[I]f appellant were successful in establishing that bromothymol blue is a known skin irritant, the claims would still be subject to a rejection under 35 U.S.C. 103 as being obvious over Yazaki in view of US Patent 5,660,790 to Lawrence (not of record), as Lawrence teaches the equivalence of bromthymol blue and several other chemical pH

indicators that change color with the pH levels, so[me] of which are the same as those used by applicant, and accordingly, are non-irritating." (Examiner's Answer, page 5, lines 5 - 11)

Appellants respectfully note the following.

A. Bromthymol Blue

In their entered Amendment mailed October 25, 2002, in which all of the independent claims were amended to specify that the pH-sensitive material was "non-irritating to the woman,"¹ Appellants stated that in Yazaki the "pH indication sheet is comprised of a sheet 7 which is wet with bromthymol blue (BTB)...[and]...the sheet 6 is placed underneath the unwoven cloth 5 and, thus, will not be brought to contact to the skin of a wearer." (Page 4, lines 19 - 23) Conversely, according to Appellants' article, "the pH-sensitive material will be in direct contact with the skin of the woman..." (Page 4, lines 27 - 28) In their non-entered Amendment mailed June 10, 2003, Appellants stated "Yazaki

¹ Each of the pending independent claims - Claims 2, 7, 13, and 31 - was amended in the Amendment mailed October 25, 2003, Appellants' first substantive amendment, to define the pH material as being *non-irritating to the woman*. Whether direct contact is specified in the claim or not, each of the independent claims defines the pH-sensitive material as being applied to the article which, by necessity, must be applied to the *surface of the article* and which, by further necessity, *must be worn in direct contact with the wearer*. It is not possible for the article to be used in any other way and still achieve its intended purpose of "identifying the premature rupture of a membrane during pregnancy."

teaches nothing about a pH-sensitive material that is non-irritating to the wearer." (Page 5, lines 12 - 13)

Since their first substantive response in the prosecution of the instant application Appellants have directed attention to the fact that their pH-sensitive material is different from that used by Yazaki in that it is *non-irritating*, and thus was different - by definition - from the effects of bromthymol blue. That this was so must have been understood by the Examiner who never questioned Appellants' position. In any event, Appellants respectfully request that the Board take official notice of the known and readily-ascertainable fact that bromthymol blue is a skin irritant.²

B. Lawrence et al.

The Examiner stated that even if Appellants established that bromthymol blue was a known skin irritant, the claims would still be subject to a rejection under 35 U.S.C. Section 103 as being obvious over Yazaki in view of

² Regarding the taking of "judicial notice," "[a]s to the propriety of the board's taking such notice at all, this court has already previously determined that the Patent Office appellate tribunals, where it is found necessary, may take notice of facts beyond the record which, while not generally notorious, are capable of such instant and unquestionable demonstration as to defy dispute." *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970); see also MPEP Section 2144.03. In this instance, that bromthymol blue may be identified as being a skin irritant may be readily ascertained by, for example, entering "bromthymol blue" and "irritant" into an Internet search engine.

Lawrence *et al.* "for example, as Lawrence teaches the *equivalence* of bromthymol blue and several other chemical pH indicators that change color with the pH levels, so[me] of which are the same as those used by applicant, and accordingly, are non-irritating." (Page 5, lines 8 - 11)

Rather than being applicable as a persuasive Section 103 reference, Appellants respectfully submit that the patent to Lawrence *et al.* only adds support to the allowability of the application over the prior art. Appellants have argued that Yazaki teaches only the use of an irritating pH-sensitive material, bromthymol blue, a teaching that is contrary to the use of a non-irritating pH-sensitive material as claimed by Appellees, and is thus inapplicable as a reference for rejection under 35 U.S.C. Section 102(e). With the exceptions only of (1) nitrazine yellow (Appellants' preferred material; please refer to, for example, page 7, lines 14 - 15, of the application as filed) and (2) bromochlorophenol blue³, the toxicological properties of which "have not been fully investigated," *each of the indicators listed in Lawrence et al. (col. 5, lines 50 - 67) can be irritating to the skin:*

³ Even if non-irritating, the pH range of this indicator is between 3.0 and 4.6, making it unsuitable for use in detecting amniotic fluid which has a pH range of 7.0 - 7.5. (Please see attached Exhibit A.)

Indicator	CAS Number	Potential Health Effect	Exhibit No.	
Acid blue 92	3861-73-2	"Skin: May cause skin irritation."	1	
Acid blue 29	5850-35-1	"Skin: May be harmful if absorbed through the skin. May cause irritation."	2	
Acid alizarin violet N	2092-55-9	"Irritant." "Personal protection - Safety glasses, gloves."	3	
Bromophenol blue	155-39-9	"Primary irritant effect: on the skin: May cause irritation."	4	
Bromochlorophenol blue	102185-52-4	"Skin: No information regarding skin irritation and other potential effects was found"	5	
Bromocresol green	76-60-8	"Irritating to eyes and skin."	6	
Chlorophenol red	4430-20-0	"Skin: Causes skin irritation."	7	
Bromocresol purple	115-40-2	"Primary irritant effect: on the skin: Irritant to skin and mucous membranes."	8	
Alizarin complexone dehydrate	3952-78-1	"Skin: May cause skin irritation."	9	
Alizarin red S monohydrate	130-22-3	"Irritating to eyes, respiratory system and skin." "Causes skin irritation." "May be harmful if absorbed through the skin."	10	
Bromothymol blue	76-59-5	"Toxicology: May act as irritant."	11	
Brilliant yellow	3051-11-4	"Contact with eyes and skin may result in irritation."	12	
Phenol red	34487-61-1	"Skin Contact: May cause irritation with redness and pain."	13	
Cresol red	1733-12-6	"Primary irritant effect: on the skin: May cause irritation."	14	
m-cresol purple	2303-01-7	"Skin Contact: May cause irritation with redness and pain."	15	
Thymol blue	76-61-9	"Skin: May cause irritation."	16	

Appellants respectfully submit that the patent to Lawrence *et al.*, if combined with Yazaki, would only serve to further support Appellants' position that the relevant prior art teaches *only* the use of irritating indicators and teaches *away from* the use of non-irritating indicators.

Because Yazaki does not disclose what is claimed, because Yazaki would not otherwise render the present invention obvious, and because the combination of Yazaki and Lawrence *et al.* reinforces the position that the prior art fails to teach, suggest, or otherwise render obvious the use of a non-irritating pH-sensitive material for use in "identifying the premature rupture of a membrane during pregnancy," Appellants respectfully submit that the Examiner's rejection on the basis of prior art is in error and should be reversed.

CONCLUSION

Appellants respectfully submit that the appealed application is in condition for allowance and that the Examiner's outstanding rejections of this application are in error and should be reversed.

An oral hearing was respectfully requested in Appellants' Appeal Brief.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'T. Moga', with a long horizontal flourish extending to the right.

Thomas T. Moga
Registration No. 34,881
Attorney for Appellants

DICKINSON WRIGHT PLLC
1901 L Street, N.W., Suite 800
Washington, D.C. 20036
202-457-0160

Dated: **May 10, 2004**



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pH Indicators

Indicator	Acid Color	Low pH	High pH	Base Color
Methyl violet	yellow	0.0	1.6	blue
Cresol red (1st range)	red	0.0	1.8	yellow
Crystal violet	yellow	0.0	1.8	blue
Malachite green	yellow	0.2	1.8	blue-green
Methyl green	yellow	0.2	1.8	blue
Metanil yellow	red	1.2	2.4	yellow
m-Cresol purple (1st range)	red	1.2	2.8	yellow
Metacresol purple (1st range)	red	1.2	2.8	yellow
Thymol blue (1st range)	red	1.2	2.8	yellow
4-o-Tolylazo-o-toluidine	orange	1.4	2.8	yellow
Orange IV (Tropaeolin 00)	red	1.4	3.2	yellow
2,6-Dinitrophenol	colorless	1.7	4.4	yellow
Benzyl orange	red	1.9	3.3	yellow
2,4-Dinitrophenol	colorless	2.0	4.7	yellow
Benzopurpurine 48	violet	2.2	4.2	red
p-Dimethylaminoazobenzene	red	2.9	4.0	yellow
→ Bromochlorophenol blue	yellow	3.0	4.6	purple
Bromophenol blue	yellow	3.0	4.6	blue
Congo red	blue	3.0	5.0	red
Methyl orange	red	3.1	4.4	yellow
Ethyl orange	red	3.4	4.8	yellow
Bromocresol green	yellow	3.8	5.4	blue
Resazurin	orange	3.8	6.4	violet
2,5-Dinitrophenol	colorless	4.0	5.8	yellow
Methyl red	red	4.2	6.3	yellow
Azolitmin (litmus)	red	4.4	6.6	blue
Alizarin red S	yellow	4.6	6.0	red
Propyl red	red	4.6	6.6	yellow
Chlorophenol red	yellow	4.6	7.0	red
p-Nitrophenol	colorless	4.7	7.9	yellow
Bromophenol red	yellow	4.8	6.8	purple
Bromocresol purple	yellow	5.2	6.8	purple
p-Nitrophenol	colorless	5.4	6.6	yellow
Bromothymol blue	yellow	6.0	7.6	blue
Brilliant yellow	yellow	6.6	7.8	red

Exhibit - A
 USSN 09/758,978
 Torok et al.

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These search terms have been highlighted: **3861 73 2 skin**

**** SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION ****

MSDS Name: Acid Blue 92

Catalog Numbers:

AC198630000, AC198630050, AC198631000

Synonyms:

2,7-Naphthalenedisulfonic

acid,4-((4-anilino-5-sulfo-1-naphthyl)-5-hydroxy-trisodium salt ;

C.I. 13390 ; Coomassie Blue

Company Identification (Europe): Acros Organics BVBA
 Janssen Pharmaceuticaaan 3a
 2440 Geel, Belgium

Company Identification (USA): Acros Organics
 One Reagent Lane
 Fairlawn, NJ 07410

For information in North America, call: 800-ACROS-01

For information in Europe, call: 0032(0) 14575211

For emergencies in the US, call CHEMTREC: 800-424-9300

For emergencies in Europe, call: 0032(0) 14575299

**** SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS ****

CAS#	Chemical Name	%	EINECS#
3861-73-2	Acid Blue 92	100.0	223-378-0

Hazard Symbols: None Listed.

Risk Phrases: None Listed.

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: Dark Blue Powder.

Caution! The toxicological properties of this material have not been fully investigated. May cause respiratory and digestive tract irritation. May cause eye and skin irritation.

Target Organs: None.

Potential Health Effects

Eye:

May cause eye irritation.

Skin:

May cause skin irritation.

Ingestion:

Exhibit - 1
 USSN 09/758,978
 Torok et al.

MATERIAL SAFETY DATA SHEET

HELENA LABORATORIES
1530 Lindbergh Dr./P.O. Box 752
Beaumont, TX 77704-0752
USA Toll Free 800-231-5663

DATE PREPARED: 1/17/1992
REVISION: 1

1. IDENTIFICATION:

NAME: ACID BLUE 29

CAS #: 5850-35-1

MOLECULAR FORMULA: C22H16N6O9S2

=====

2. HAZARDOUS INGREDIENTS:

CHEMICAL NAME/COMMON NAME CAS #	%	EXPOSURE LIMITS	
		OSHA PEL	ACGIH TLV
ACID BLUE 29 5850-35-1	100.0	NA	NA

=====

3. PHYSICAL DATA:

BOILING POINT: NA SPECIFIC GRAVITY (H2O = 1): NA
VAPOR PRESSURE (MM HG.): NA MELTING POINT: NIF
VAPOR DENSITY (AIR = 1): NA SOLUBILITY IN WATER: YES
APPEARANCE AND ODOR: BLACK POWDER

=====

NA = Not Applicable
NL = Not Listed

NE = Not Established
NIF = No Information Found

4. HEALTH HAZARD DATA:

PRIMARY ROUTE(S) OF ENTRY:

INHALATION? YES SKIN? YES INGESTION? YES

CARCINOGENICITY: NTP? NO IARC? NO

ACUTE EFFECTS OF OVEREXPOSURE:

EYES: MAY CAUSE IRRITATION.

SKIN: MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN. MAY CAUSE IRRITATION.

INHALATION: MAY BE HARMFUL IF INHALED. MAY CAUSE IRRITATION.

INGESTION: MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION.

CHRONIC EFFECTS OF EXPOSURE: THE TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

TOXICITY DATA: NO DATA AVAILABLE.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NIF

EMERGENCY AND FIRST AID PROCEDURES:

EYE CONTACT: IN CASE OF EYE CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. ASSURE ADEQUATE FLUSHING BY SEPARATING THE EYELIDS WITH FINGERS. CALL A PHYSICIAN.

SKIN CONTACT: IN CASE OF SKIN CONTACT, FLUSH WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

INHALATION: IF INHALED, REMOVE TO FRESH AIR. IF BREATHING BECOMES DIFFICULT, CALL A PHYSICIAN.

INGESTION: IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS. CALL A PHYSICIAN.

=====

5. FIRE AND EXPLOSION HAZARD:

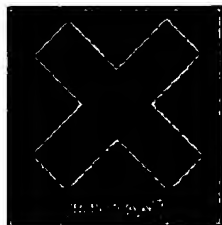
FLASHPOINT (METHOD USE): NA

FLAMMABLE LIMITS: NA LEL NA UEL NA

EXTINGUISHING MEDIA: WATER SPRAY, CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

5. FIRE AND EXPLOSION HAZARD (CONT):

Safety (MSDS) data for acid alizarin violet N



General

Synonyms: 4-hydroxy-3-((2-hydroxy-1-naphthalenyl)azo)-benzenesulfonic acid monosodium salt, acid alizarin violet B, acid alizarin violet, acid chrome violet K, acid chrome violet N, chromal violet B, C.I. 15670, yodochrome violet B, C.I. mordant violet 5, numerous further names

Use: indicator, stain

Molecular formula: $C_{16}H_{12}N_2O_5S$

CAS No: 2092-55-9

EINECS No: 218-246-4

Physical data

Appearance: red powder

Melting point:

Boiling point:

Vapour density:

Vapour pressure:

Density ($g\ cm^{-3}$):

Flash point:

Explosion limits:

Autoignition temperature:

Water solubility:

Stability

Stable. Incompatible with strong oxidizing agents.

Toxicology

Irritant.

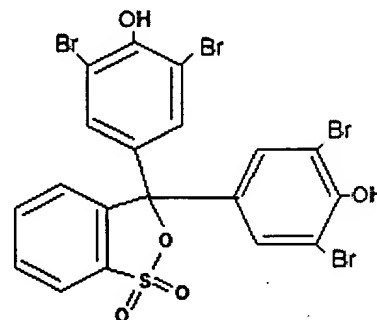
Exhibit - 3
USSN 09/758,978
Torok et al.



BROMO PHENOL BLUE

SPECIFICATION SHEET

CAS No.	115 - 39 - 9
Chemical Formula	$C_{19}H_{10}Br_4O_5S$
Molecular Weight	669.98
Melting Point	272 - 273° c
Dye Content	~95%
Transition Range	pH 3.0 - 4.6 Greenish Yellow - Reddish Blue
Absorption Max (pH3.0)	434 - 439 nm
Absorption Max (pH4.6)	590 - 593 nm
Absorptivity (1%,1cm) pH 3.0	350 - 385
Absorptivity (1%,1cm) pH 4.6	940 - 1000
Loss On Drying (110° c)	<1%



[PRODUCT LIST](#) [HOME](#)

BRIEF MSDS

Hazards identification

- Hazard description:- Not applicable
Information pertaining to particular dangers for man and environment: - Not applicable

Toxicological information

- Acute toxicity:
Primary irritant effect:
on the skin: May cause irritation
on the eye: May cause irritation
Sensitization: No sensitizing effects known.

Transport information

- Not a hazardous material for transportation.
- DOT regulations:
Hazard class: None
Land transport ADR/RID (cross-border)
ADR/RID class: None
Maritime transport IMDG:

Exhibit - 4
USSN 09/758,978
Torok et al.

Material Safety Data Sheet

Bromochlorophenol blue, water soluble

ACC# 42758

Section 1 - Chemical Product and Company Identification

MSDS Name: Bromochlorophenol blue, water soluble**Catalog Numbers:** AC199680000, AC199680010, AC199680050**Synonyms:** None**Company Identification:**

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01**For emergencies in the US, call CHEMTREC:** 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
2553-71-1	Bromochlorophenol blue	100.0	219-861-0

Hazard Symbols: None listed.**Risk Phrases:** None listed.

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: black powder. **Caution!** The toxicological properties of this material have not been fully investigated.

Target Organs: None.**Potential Health Effects****Eye:** No information regarding eye irritation and other potential effects was found.**Skin:** No information regarding skin irritation and other potential effects was found.**Ingestion:** The toxicological properties of this substance have not been fully investigated.**Inhalation:** The toxicological properties of this substance have not been fully investigated.**Chronic:** No information found.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid

Exhibit - 5

USSN 09/758,978

Torok et al.

Bromocresol Green

MATERIAL SAFETY DATA SHEET

SECTION 1. ----- CHEMICAL IDENTIFICATION -----

CATALOG #: 02559

NAME: BROMOCRESOL GREEN SOLUTION, READY-TO-USE

SECTION 2. ----- COMPOSITION/INFORMATION ON INGREDIENTS -----

CAS #: 76-60-8

EC NO: 200-972-8

HAZARDOUS INGREDIENTS

CONTAINS 2-PROPANOL (ISOPROPYL ALCOHOL), CHEMICAL ABSTRACTS REGISTRY
NUMBER 67-63-0.

SECTION 3. ----- HAZARDS IDENTIFICATION -----

LABEL PRECAUTIONARY STATEMENTS

FLAMMABLE (USA)

HIGHLY FLAMMABLE (EU)

IRRITANT

IRRITATING TO EYES AND SKIN.

VAPORS MAY CAUSE DROWSINESS AND DIZZINESS.

TARGET ORGAN(S):

NERVES

KIDNEYS

SKIN IRRITANT.

KEEP CONTAINER TIGHTLY CLOSED.

KEEP AWAY FROM SOURCES OF IGNITION - NO SMOKING.

AVOID CONTACT WITH SKIN AND EYES.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF
WATER AND SEEK MEDICAL ADVICE.

SECTION 4. ----- FIRST-AID MEASURES -----

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.
CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS
AMOUNTS OF WATER.

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF

Material Safety Data Sheet

Chlorophenol Red, Indicator Grade

ACC# 72272

Section 1 - Chemical Product and Company Identification

MSDS Name: Chlorophenol Red, Indicator Grade**Catalog Numbers:** AC190040000, AC190040050, AC190040100, AC9532978, AC9655454, AC9681524, XXAC19004-40, XXAC1900410K, XXAC1900415K**Synonyms:** CPR; 3'-3'-Dichlorophenylsulfonaphthalein**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
4430-20-0	Chlorophenol Red	ca 100	224-619-2

Hazard Symbols: XI**Risk Phrases:** 36/38

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: brown solid. May cause respiratory and digestive tract irritation. The toxicological properties of this material have not been fully investigated. Causes eye and skin irritation.

Warning!

Target Organs: No data found.

Potential Health Effects

Eye: Causes eye irritation.**Skin:** Causes skin irritation.**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea. The toxicological properties of this substance have not been fully investigated.**Inhalation:** May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.**Chronic:** No information found.

Section 4 - First Aid Measures

Exhibit - 7
 USSN 09/758,978
 Torok et al.



BROMO CRESOL PURPLE

SPECIFICATION SHEET

CAS No.	115 - 40 - 2	
Chemical Formula	$C_{21}H_{16}Br_2O_5S$	
Molecular Weight	540.24	
Melting Point	240° c	
Dye Content	~95%	
Transition Range	pH 5.2 - 6.8 Greenish Yellow to Purple	
Absorption Max(pH5.2)	427 - 431 nm	
Absorption Max(pH6.8)	588 - 590 nm	
Absorptivity(1%,1cm)pH 5.2	400 - 450	
Absorptivity(1%,1cm)pH 6.8	1000 - 1100	
Loss On Drying	<1%	

[PRODUCT LIST](#)

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Hazards identification

- Hazard description: Xi Irritant
Information pertaining to particular dangers for man and environment
R 36/37/38 Irritating to eyes, respiratory system and skin.

Toxicological information

- Acute toxicity:
Primary irritant effect:
on the skin: Irritant to skin and mucous membranes.
on the eye: Irritating effect.
Sensitization: No sensitizing effects known.

Transport information

- Not a hazardous material for transportation.
- DOT regulations:
Hazard class: None
- Land transport ADR/RID (cross-border)
ADR/RID class: -
None
- Maritime transport IMDG:
- IMDG Class: None

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Material Safety Data Sheet

Alizarin Complexone Dihydrate, Indicator Grade

ACC# 96598

Section 1 - Chemical Product and Company Identification

MSDS Name: Alizarin Complexone Dihydrate, Indicator Grade**Catalog Numbers:** AC155830000, AC155830010, AC155830050**Synonyms:** (3,4-Dihydroxy-2-Anthraquinonyl)methyliminodiacetic Acid Dihydrate; Alizarin Complexon; Alizarine Fluorine Blue.**Company Identification:**

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01**For emergencies in the US, call CHEMTREC:** 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
3952-78-1	Alizarin Complexone Dihydrate	>99.00	223-544-2

Hazard Symbols: None listed.**Risk Phrases:** None listed.

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: orange-yellow powder. **Caution!** The toxicological properties of this material have not been fully investigated. May cause eye and skin irritation. May cause respiratory and digestive tract irritation.

Target Organs: No data found.**Potential Health Effects****Eye:** Dust may cause mechanical irritation. The toxicological properties of this material have not been fully investigated.**Skin:** May cause skin irritation. The toxicological properties of this material have not been fully investigated.**Ingestion:** May cause digestive tract disturbances. The toxicological properties of this substance have not been fully investigated.**Inhalation:** Dust is irritating to the respiratory tract. May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.**Chronic:** No information found.

Section 4 - First Aid Measures

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Valid 11/2001 - 01/2002

Aldrich Chemical Co., Inc.
1001 West St. Paul
Milwaukee, WI 53233 USA
Tel: 414-273-3850

M A T E R I A L S A F E T Y D A T A S H E E T

SECTION 1. - - - - - CHEMICAL IDENTIFICATION- - - - -

CATALOG #: 119962
NAME: ALIZARIN RED S MONOHYDRATE, CERTIFIED

SECTION 2. - - - - - COMPOSITION/INFORMATION ON INGREDIENTS - - - - -

CAS #: NONE
MF: C14H8O7S
EC NO: 204-981-8

SYNONYMS

ACID RED ALIZARINE * AHCOQUINONE RED S * ALIZARIN CARMINE (BIOLOGICAL STAIN) * ALIZARINE CARMINE INDICATOR * ALIZARINE RED A * ALIZARINE RED AS * ALIZARINE RED INDICATOR * ALIZARINE RED S (BIOLOGICAL STAIN) * ALIZARINE RED S SODIUM SALT * ALIZARINE RED SW * ALIZARINE RED SZ * ALIZARINE RED W * ALIZARINE RED WA * ALIZARINE RED FOR WOOL * ALIZARINE RED WS * ALIZARINE S * ALIZARINE S EXTRA CONC. A EXPORT * ALIZARINE S EXTRA PURE A * ALIZARIN RED S * ALIZARINROT-S (GERMAN) * ALIZARIN S * ALIZARINSULFONATE * CALCOCHROME ALIZARINE RED SC * CARNELIO RUBINE LAKE * CHROME RED ALIZARINE * C.I. 58005 * C.I. MORDANT RED 3 * DIAMOND RED W * 9,10-DIHYDRO-3,4-DIHYDROXY-9,10-DIOXO-2-ANTHRACENESULFONIC ACID MONOSODIUM SALT * EXT D AND C RED NO. 7 * FENAKROM RED W * MITSUI ALIZARINE RED S * OXANAL FAST RED SW * SODIUM ALIZARINESULFONATE * SODIUM ALIZARIN-3-SULFONATE *

SECTION 3. - - - - - HAZARDS IDENTIFICATION - - - - -

LABEL PRECAUTIONARY STATEMENTS

IRRITANT

IRRITATING TO EYES, RESPIRATORY SYSTEM AND SKIN.

CAUSES SEVERE IRRITATION.

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR SUITABLE PROTECTIVE CLOTHING.

SECTION 4. - - - - - FIRST-AID MEASURES- - - - -

IF SWALLOWED, WASH OUT MOUTH WITH WATER PROVIDED PERSON IS CONSCIOUS.

CALL A PHYSICIAN.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF CONTACT, IMMEDIATELY WASH SKIN WITH SOAP AND COPIOUS AMOUNTS OF WATER.

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH COPIOUS AMOUNTS OF WATER FOR AT LEAST 15 MINUTES.

SECTION 5. - - - - - FIRE FIGHTING MEASURES - - - - -

EXTINGUISHING MEDIA

WATER SPRAY.

CARBON DIOXIDE, DRY CHEMICAL POWDER OR APPROPRIATE FOAM.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

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SECTION 6. - - - - - ACCIDENTAL RELEASE MEASURES- - - - -

WEAR RESPIRATOR, CHEMICAL SAFETY GOGGLES, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

SECTION 7. - - - - - HANDLING AND STORAGE- - - - -

REFER TO SECTION 8.

SECTION 8. - - - - - EXPOSURE CONTROLS/PERSONAL PROTECTION- - - - -

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

WASH THOROUGHLY AFTER HANDLING.

DO NOT BREATHE DUST.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

NIOSH/MSHA-APPROVED RESPIRATOR.

COMPATIBLE CHEMICAL-RESISTANT GLOVES.

CHEMICAL SAFETY GOGGLES.

KEEP TIGHTLY CLOSED.

STORE IN A COOL DRY PLACE.

SECTION 9. - - - - - PHYSICAL AND CHEMICAL PROPERTIES - - - - -

DATA NOT AVAILABLE

SECTION 10. - - - - - STABILITY AND REACTIVITY - - - - -

STABILITY

STABLE.

INCOMPATIBILITIES

STRONG OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

CARBON MONOXIDE, CARBON DIOXIDE

SULFUR OXIDES

SODIUM OXIDES

HAZARDOUS POLYMERIZATION

WILL NOT OCCUR.

SECTION 11. - - - - - TOXICOLOGICAL INFORMATION - - - - -

ACUTE EFFECTS

CAUSES SKIN IRRITATION.

MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.

CAUSES EYE IRRITATION.

MAY BE HARMFUL IF INHALED.

MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER RESPIRATORY TRACT.

MAY BE HARMFUL IF SWALLOWED.

TO THE BEST OF OUR KNOWLEDGE, THE CHEMICAL, PHYSICAL, AND TOXICOLOGICAL PROPERTIES HAVE NOT BEEN THOROUGHLY INVESTIGATED.

RTECS #: CB1095300

2-ANTHRACENESULFONIC ACID, 9,10-DIHYDRO-3,4-DIHYDROXY-9,10-DIOXO-, MONOSODIUM SALT

TOXICITY DATA

IVN-MUS LD50:70 MG/KG

EXPEAM 28,180,1972

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL ENTRY IN RTECS FOR COMPLETE INFORMATION.

SECTION 12. - - - - - ECOLOGICAL INFORMATION - - - - -

DATA NOT YET AVAILABLE.

SECTION 13. - - - - - DISPOSAL CONSIDERATIONS - - - - -

CONTACT A LICENSED PROFESSIONAL WASTE DISPOSAL SERVICE TO DISPOSE OF THIS MATERIAL.

DISSOLVE OR MIX THE MATERIAL WITH A COMBUSTIBLE SOLVENT AND BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER.

OBSERVE ALL FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS.

Safety (MSDS) data for bromothymol blue

General

Synonyms: 3',3''-dibromothymolsolfonphthalein

Use: indicator

Molecular formula: $C_{27}H_{28}Br_2O_5S$

CAS No: 76-59-5

EINECS No:

Physical data

Appearance: purple to pink powder

Melting point: 200 C

Boiling point:

Vapour density:

Vapour pressure:

Density ($g\ cm^{-3}$):

Flash point:

Explosion limits:

Autoignition temperature:

Water solubility: negligible

Stability

Stable. Incompatible with strong oxidizing agents.

Toxicology

May act as an irritant.

Toxicity data

(The meaning of any abbreviations which appear in this section is given here.)

Risk phrases

(The meaning of any risk phrases which appear in this section is given here.)

Transport information

(The meaning of any UN hazard codes which appear in this section is given here.)

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GFS CHEMICALS, INC.

P.O. Box 245 Powell, OH 43065
740-881-5501(Tel.) 740-881-5989(Fax)
1-800-424-9300(Chemtrec 24Hr. Info.)

MATERIAL SAFETY DATA SHEET

674

BRILLIANT YELLOW

CHEMICAL NAME & SYNONYMS

Brilliant Yellow

DOT CLASS

NR

SARA TITLE 313

No

FORMULA

C26H18N4O8S2Na2

F.W.

624.57

CAS#

3051-11-4

PHYSICAL DATA

Water soluble pH indicator range 6.0 - 8.0 yellow-orange.

APPEARANCE & ODOR

Yellow-orange powder. Odorless.

REACTIVITY & CONDITIONS TO AVOID

No hazardous self-reactivity.

FIRE HAZARDS

Will be consumed in general fire. Avoid inhalation of smoke or fumes.

EXTINGUISHER

Fight surrounding fire

FLASHPOINT

N/A

LEL

N/A

UEL

N/A

HEALTH HAZARDS

Will stain tissue. Internal effects unknown. LD/TD no data. PEL/TLV not established. No evidence of carcinogenicity.

SPECIAL PRECAUTIONS

Use good laboratory practices. Wear goggles while handling.

FIRST AID

Wash up thoroughly with water after contact. If swallowed, give water or milk and induce vomiting. Call a physician.

SPILLS & LEAKS

Wash up with water. Disposal to incinerator or sanitary drain.

CATALOG #

674

PREPARED BY

LM

DATE

7/1/96

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MATERIAL SAFETY DATA SHEET BRILLIANT YELLOW

SECTION I - Product Identification

PRODUCT NAME: BRILLIANT YELLOW FORMULA: C₂₆H₁₈N₄O₈S₂Na₂ FORMULA WT: 624.55 CAS NO.: COMMON SYNONYMS: DIRECT YELLOW 4

Precautionary Labeling

CAS 3051-11-4

N/A

SECTION II - Hazardous Components

N/A

SECTION III - Physical Data

BOILING POINT: N/A VAPOR PRESSURE @ 20C (MM HG): N/A MELTING POINT: N/A VAPOR DENSITY (AIR=1): N/A SPECIFIC GRAVITY: N/A EVAPORATION RATE: N/A (H₂O=1) (BUTYL ACETATE=1) SOLUBILITY(H₂O): SOLUBLE PERCENT VOLATILES BY VOLUME: N/A APPEARANCE & ODOR: ORANGE POWDER

SECTION IV - Fire and Explosion Hazard Data

FLASH POINT: NONE FLAMMABLE LIMITS: UPPER - N/A % LOWER - N/A % FIRE EXTINGUISHING MEDIA WATER FOG, CO₂, DRY CHEMICAL SPECIAL FIRE-FIGHTING PROCEDURES WEAR SELF-CONTAINED BREATHING APPARATUS UNUSUAL FIRE AND EXPLOSION HAZARDS EMITS TOXIC FUMES ON THERMAL DECOMPOSITION

SECTION V - Health Hazard Data

THRESHOLD LIMIT VALUE (TLV/TWA): 5 MG/M³ (RECOMMENDED BY MANUFACTURER) EFFECTS OF OVEREXPOSURE CONTACT WITH EYES AND SKIN MAY RESULT IN IRRITATION. INHALATION OF DUST MAY RESULT IN RESPIRATORY IRRITATION EMERGENCY AND FIRST AID PROCEDURES EYES: FLUSH THOROUGHLY WITH WATER FOR AT LEAST 15 MINUTES SKIN: WASH AFFECTED AREAS THOROUGHLY WITH SOAP AND WATER DUST INHALATION: REMOVE TO FRESH AIR; GIVE ARTIFICIAL RESPIRATION IF NECESSARY INGESTION: IF CONSCIOUS, INDUCE VOMITING

SECTION VI - Reactivity Data

STABILITY: STABLE CONDITIONS TO AVOID: NONE INCOMPATIBLES: OXIDIZERS, POLYMERIZABLE MATERIALS DECOMPOSITION PRODUCTS: COX, SOX, NOX, NH₃

SECTION VII - Spill and Disposal Procedures

STEPS TO BE TAKEN IN THE EVENT OF A SPILL OR DISCHARGE TAKE UP & CONTAINERIZE FOR PROPER DISPOSAL

SECTION VIII - Protective Equipment

MSDS Number: P2070 * * * * * Effective Date: 05/08/03 * * * * * Supersedes: 07/13/00

MSDS**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



Mallinckrodt
CHEMICALS



24 Hour Emergency Telephone: 908-659-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-956-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

PHENOL RED, SODIUM SALT

1. Product Identification

Synonyms: Phenol red, indicator grade (water soluble); phenolsulfonphthalein sodium salt; 4,4'-(3H-2,1-benzoxathiol-3-ylidene) bis-phenol, S,S-dioxide, sodium salt

CAS No.: 34487-61-1

Molecular Weight: 376.36

Chemical Formula: C₁₉H₁₄O₅S Na

Product Codes:

J.T. Baker: T265

Mallinckrodt: 4266

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Phenol Red, Sodium Salt	34487-61-1	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

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CAUTION! MAY BE HARMFUL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

J.T. Baker SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight
Flammability Rating: 0 - None
Reactivity Rating: 0 - None
Contact Rating: 1 - Slight
Lab Protective Equip: GOGGLES; LAB COAT
Storage Color Code: Orange (General Storage)

Potential Health Effects

Inhalation:

May cause irritation to the respiratory tract. Symptoms may include coughing and shortness of breath.

Ingestion:

Large oral doses may cause irritation to the gastrointestinal tract. Ingestion effects have not been studied completely but may exhibit symptoms similar to phenolphthalein such as fall of blood pressure or an itching skin rash. May be a strong laxative.

Skin Contact:

May cause irritation with redness and pain.

Eye Contact:

May cause irritation, redness and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.



CRESOL RED

SPECIFICATION SHEET

CAS No.	1733-12-16	
Chemical Formula	$C_{21}H_{18}O_5S$	
Molecular Weight	382.43	
Melting Point	290° c	
Dye Content	~95%	
Transition Range	pH 0.5 - pH 1.8 Pink to Yellow pH 7.2 - pH 8.8 Yellow to Purple	
Absorptivity(pH 0.5)517 - 520 nm	1180 - 1230	
Absorptivity(pH 2.5)432-436 nm	490-540	
Absorptivity(pH 6.5)432 - 436 nm	490 - 540	
Absorptivity(pH 8.5)571 - 574 nm	1000 - 1050	
Loss On Drying (110° c.)	< 5%	

[PRODUCT LIST](#) [HOME](#)

BRIEF MSDS**Hazards identification**

- Hazard description:- Not applicable
Information pertaining to particular dangers for man and environment:-Not applicable

Toxicological information

- Acute toxicity:
Primary irritant effect:
on the skin: May cause irritation
on the eye: May cause irritation
Sensitization: No sensitizing effects known.

Transport information

- Not a hazardous material for transportation.
- DOT regulations:
Hazard class: None
Land transport ADR/RID (cross-border)

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Torok et al.

MSDS Number: C5522 * * * * * Effective Date: 01/03/03 * * * * * Supersedes: 01/31/00

**Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone : 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-896-6866

Outside U.S. And Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

m-Cresol Purple

1. Product Identification

Synonyms: m-Cresolsulfonphthalein
CAS No.: 2303-01-7
Molecular Weight: 382.44
Chemical Formula: C₂₁H₁₈O₅S
Product Codes: F860

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
m-Cresol Purple	2303-01-7	90 - 100%	Yes

3. Hazards Identification

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

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SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 0 - None

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; PROPER GLOVES

Storage Color Code: Green (General Storage)

Potential Health Effects

Inhalation:

May cause irritation to the respiratory tract.

Ingestion:

Large oral doses may cause irritation to the gastrointestinal tract.

Skin Contact:

May cause irritation with redness and pain.

Eye Contact:

May cause irritation, redness and pain.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Skin Contact:

Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

5. Fire Fighting Measures

Fire:

Not considered to be a fire hazard.

Material Safety Data Sheet

Thymol Blue

ACC# 60620

Section 1 - Chemical Product and Company Identification

MSDS Name: Thymol Blue**Catalog Numbers:** T416 5, T4165**Synonyms:** Thymolsulfonephthalein**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
76-61-9	Thymol blue	100	200-973-3

Hazard Symbols: None listed.**Risk Phrases:** None listed.

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: green-red to brown. **Caution!** The toxicological properties of this material have not been fully investigated. May cause irritation.

Target Organs: None.

Potential Health Effects

Eye: May cause eye irritation.

Skin: May cause skin irritation.

Ingestion: May cause irritation of the digestive tract. The toxicological properties of this substance have not been fully investigated.

Inhalation: May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Chronic: No information found.

Section 4 - First Aid Measures

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